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10/587,329	04/25/2007	Gavin David Cowie	C64-8285	4677

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EXAMINER

BUCK, MATTHEW R

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3671

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,329	Applicant(s) COWIE ET AL.	
	Examiner MATTHEW R. BUCK	Art Unit 3671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,6,9-18,27,28,30-33,36,38-41 and 48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,6,14-17,27,28,36,38-41 and 48 is/are rejected.
- 7) ☒ Claim(s) 9-13,18 and 30-33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5, 27, 28, 36, 38-41 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards (5873415), in view of Winegeart (4519576), and further in view of Bonetti (5324008).

3. As concerns claims 1, 27, 28 and 36, Edwards shows a suspension valve housing (10), said valve housing having a production bore (18); a valve element (22) disposed in said suspension valve housing, the valve element being an apertured (44) ball (30) valve element; said valve being remotely actuatable between an open position and a closed position (column 4, lines 19+); the production bore being offset for the centre of the valve housing (Fig. 7); actuation means (52, 50a and 54a) coupled to the ball element for permitting remote actuation of the ball element. Edwards lacks to show said actuation means comprising at least one moveable guide shaft disposed substantially parallel to the production bore, at least two actuation bars coupled between the respective guide shaft and to the apertured ball element, the actuation bars being coupled to the guide shaft by rotatable pin joints, and being slidably located in respective bar pocket of said ball element; and the valve element with a valve bore offset from the centre of the ball, so that one portion of the ball element is relatively thick

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and another portion of the valve element is relatively thin. However, Winegeart teaches said actuation means comprising at least one moveable guide shafts (54) disposed substantially parallel to the production bore (16), an actuation bar (26) coupled between the respective guide shafts and to the apertured ball element (20), the actuation bars being coupled to the ball element by rotatable pin joints (24), and being slidingly (28) located in respective bar pocket (32) of said guide shaft. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least two actuation bars, since it has been held that mere duplication of the essential working parts of a device involves only routine skilled the art. It also would have been obvious to one having ordinary skill in the art at the time of the invention was made to have the actuation bars being coupled to the guide shafts by rotatable pin joints, and being slidingly located in respective bar pockets of said ball element instead of having the actuation bars being coupled to the ball element by rotatable pin joints, and being slidingly located in respective bar pocket of said guide shaft, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. One of ordinary skill in the art at the time the invention was made would have been motivated to modify the valve system taught in Edwards with the actuation means taught in Winegeart because actuation bars are known to provide means for allowing a guide shaft/piston to actuate a ball valve element from a distance in a separate chamber; furthermore, it would have been obvious to one having ordinary skill in the art that a simple substitution of the actuation means taught in Edwards for the actuation means taught in Winegeart would obtain predictable results, as set forth by the

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Supreme Court in the KSR decision. Bonetti teaches wherein the valve element (8) with a valve bore (9) offset from the centre of the ball, so that one portion of the ball element is relatively thick and another portion of the valve element is relatively thin (Fig. 2a-2c).

One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Edwards and Winegeart with the elements taught in Bonetti because an offset ball valve bore is known to provide means for increasing the strength of one side of the valve body, which it allows the system to withstand a higher pressure differential. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves versatility and efficiency of the valve design.

4. As concerns claim 5, it would have been obvious to one having ordinary skill in the art at the time the invention was made that using an offset bore valve seat for engaging with the ball element instead of using a standard bore valve seat would be an obvious matter of design choice, since a change in the shape of a prior art device is a design consideration within the skill of the art.

5. As concerns claims 38-41, Edwards shows a suspension valve housing (10), said valve housing having a production bore (18) and an annulus bore (20); a production bore valve element (22) disposed in said production bore and an annulus bore valve element (26) disposed in said annulus bore, the production bore valve element being an apertured (44) ball (30) valve element; single actuator means (hydraulic system; 50a, 54a, 56a and 58a) moveable within said housing for actuating

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the production valve element and the annulus valve element to move between a closed and an open position; said actuator means being remotely operable to move said valves between said open and closed positions (column 4, lines 19+); the production bore being offset from the centre of the valve housing (Fig. 7); and actuation means (52, 50a and 54a) coupled to the ball element for permitting remote actuation of the ball element. Edwards lacks to show the production bore valve element with a valve bore offset from the centre of the ball, so that one portion of the ball element is relatively thick and another portion of the valve element is relatively thin; and said actuation means comprising at least two moveable guide shafts disposed substantially parallel to the production bore, at least two actuation bars coupled between the guide shafts and to the apertured ball element, the actuation bars being coupled to the guide shafts by rotatable pin joints, and being slidingly located in respective bar pockets of said ball element. However, Winegeart teaches an actuation means comprising at least two moveable guide shafts (54) disposed substantially parallel to the production bore, an actuation bar (26) coupled between the respective guide shafts and to the apertured ball element, the actuation bars being coupled to the ball element by rotatable pin joints (24), and being slidingly (28) located in respective bar pocket (32) of said guide shaft. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least two actuation bars, since it has been held that mere duplication of the essential working parts of a device involves only routine skilled the art. It also would have been obvious to one having ordinary skill in the art at the time of the invention was made to have the actuation bars being coupled to the guide shafts by rotatable pin

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joints, and being slidably located in respective bar pockets of said ball element instead of having the actuation bars being coupled to the ball element by rotatable pin joints, and being slidably located in respective bar pocket of said guide shaft, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. One of ordinary skill in the art at the time the invention was made would have been motivated to modify the valve system taught in Edwards with the actuation means taught in Winegeart because actuation bars are known to provide means for allowing a guide shaft/piston to actuate a ball valve element from a distance in a separate chamber; furthermore, it would have been obvious to one having ordinary skill in the art that a simple substitution of the actuation means taught in Edwards for the actuation means taught in Winegeart would obtain predictable results, as set forth by the Supreme Court in the KSR decision. Bonetti teaches wherein the valve element (8) with a valve bore (9) offset from the centre of the ball, so that one portion of the ball element is relatively thick and another portion of the valve element is relatively thin (Fig. 2a-2c). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Edwards and Winegeart with the elements taught in Bonetti because an offset ball valve bore is known to provide means for increasing the strength of one side of the valve body, which it allows the system to withstand a higher pressure differential. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves versatility and efficiency of the valve design.

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6. As concerns claim 48, Edwards shows wherein the suspension valve housing (10) is configured to be inserted wholly into a production bore of an undersea wellhead system (column 3, lines 10+).

7. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards, and further in view of Winegeart.

8. As concerns claims 14-16, Edwards shows providing a dual bore tubing hanger (10) having a production bore (18) and an annulus bore (20), disposing a remotely operable apertured (44) ball (30) valve element (22) in said production bore, the production bore being offset from the centre of the valve housing (Fig. 7), and actuating the valve remotely between an open and a closed position (column 4, lines 19+).

Edwards lacks to show actuating a guide shaft to move rectilinearly in the direction of the production bore, coupling slidable actuating bars between the guide shaft and the apertured ball valve element so that said valve element is rotatable as said guide bar moves rectilinearly; actuating the valve to a fully locked open position; and wherein said valve is actuated by translating linear movement to rotational movement. However, Winegeart teaches actuating a guide shaft (54) to move rectilinearly in the direction of the production bore (16), coupling a slidable (28) actuating bar (26) between the guide shaft and the apertured ball valve element (20) so that said valve element is rotatable as said guide shaft moves rectilinearly; actuating the valve to a fully locked open position; and wherein said valve is actuated by translating linear movement to rotational movement. It would have been obvious to one of ordinary skill in the art at the time the

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invention was made to have actuation bars, since it has been held that mere duplication of the essential working parts of a device involves only routine skilled the art. One of ordinary skill in the art at the time the invention was made would have been motivated to modify the valve system taught in Edwards with the actuation means taught in Winegeart because actuation bars are known to provide means for allowing a guide shaft/piston to actuate a ball valve element from a distance in a separate chamber; furthermore, it would have been obvious to one having ordinary skill in the art that a simple substitution of the actuation means taught in Edwards for the actuation means taught in Winegeart would obtain predictable results, as set forth by the Supreme Court in the KSR decision. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves versatility of the valve design.

9. As concerns claim 17, the combination shows wherein the transitional movement is achieved by providing an actuating bar (Winegeart: 26) coupled between the rotatable ball element (Winegeart: 20) and rectilinearly moveable guide shafts (Winegeart: 54), the actuating bars being rotatably coupled to the ball element by pin joints (Winegeart: 24) and being slideably (Winegeart: 28) moveable in pocket (Winegeart: 32) of the guide shaft. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have actuation bars, since it has been held that mere duplication of the essential working parts of a device involves only routine skilled the art. It also would have been obvious to one having ordinary skill in the art at the time of the invention was made to have the actuation bars being coupled to the guide shafts by

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rotatable pin joints, and being slidably located in respective bar pockets of said ball element instead of having the actuation bars being coupled to the ball element by rotatable pin joints, and being slidably located in respective bar pocket of said guide shaft, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards, Winegeart and Bonetti as applied to claim 1 above, and further in view of Garcia-Soule et al. (5884703).

11. As concerns claim 6, Edwards, Winegeart and Bonetti lack to show wherein an inclined groove is disposed in said production bore for receiving an elastomeric seal with the lowest part of the groove being disposed adjacent to the thinnest part of the valve seat to minimize the length of seat exposed to differential pressure. However, Garcia-Soule teaches wherein an inclined groove is disposed in said production bore for receiving a seal with the lowest part of the groove being disposed adjacent to the thinnest part of the valve seat to minimize the length of seat exposed to differential pressure (column 8, lines 52+). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Edwards, Winegeart and Bonetti with the elements taught in Garcia-Soule et al. because a seal is known to provide means for sealing around a ball valve; furthermore, the use of seals to improve ball valves in the same way is known, as set forth by the Supreme Court in the KSR decision. Therefore, the invention as a whole would have been prima facie

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obvious to one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves efficiency of the valve design.

Allowable Subject Matter

12. Claims 9-13, 18 and 30-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

13. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments regarding Winegeart, Bonetti and Garcia-Soule et al. are noted, but the elements are shown above in the rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW R. BUCK whose telephone number is (571) 270-3653. The examiner can normally be reached on Monday through Friday 7:30am - 5:00pm E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Will can be reached on (571) 272-6998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas B Will/
Supervisory Patent Examiner
Art Unit 3671

/Matthew R Buck/
Examiner, Art Unit 3671